The US/Africa Materials Institute

Wolé Soboyejo, Princeton Institute of Science and Technology of Materials
Princeton University, DMR Award # 0231418

Objectives:

- To promote collaboration between the U.S. and African scientists in materials research and education
- Interdisciplinary research on materials that can stimulate economic development and improved quality of life
- Develop materials educational modules and future U.S./African scientists with exposure to international collaboration

Approach:

- Develop networks between U.S. & African researchers.
- Engage U.S. and African researchers in systems-based research in the following areas:
  - Materials for affordable housing
  - Thin films for microelectronics and MEMS
  - Nano-bio-technology and bioMEMS
- Develop web-based materials, engineering modules

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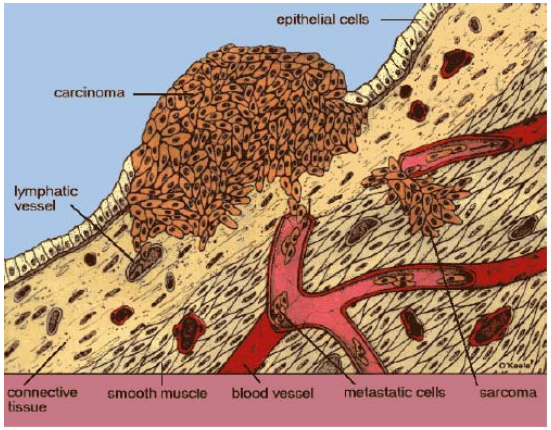
Research Highlights:

- LHRH-functionalization of magnetic nanoparticles for cancer cell detection
- Showed that LHRH functional magnetite nanoparticles attach specifically to breast and prostate cancer

Accomplishments:

- Supported the visits of more than 30 African scientists to do materials research in the U.S
- Co-organized the Africa Materials Research Society and helped to form the four chapters of the Africa-MRS
- Co-organized workshop (with NSF) to bring African science and technology ministries into partnership with NSF
- Develop web-based materials science and engineering learning modules (usami.princeton)

Nanoparticles transported to breast or prostate cancer tissue by blood



Microscopic images of nanoparticles attached to breast cancer tissue